



NTSB National Transportation Safety Board

A New Approach To Runway Safety

Presentation to: Yellow
Jacket Flying Club

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NTSB 101

- Independent agency, investigate transportation accidents, all modes
- Determine probable cause(s) and make recommendations to prevent recurrences
- Single focus is **SAFETY**
- Primary product: Safety recommendations
 - Acceptance rate > 80%

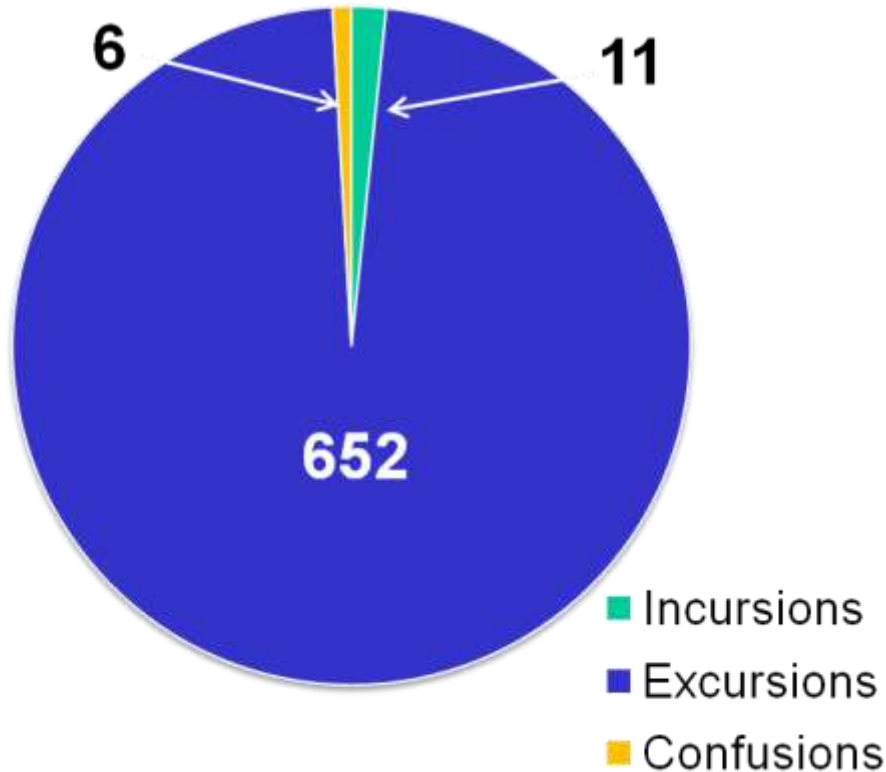


Runway Incursions

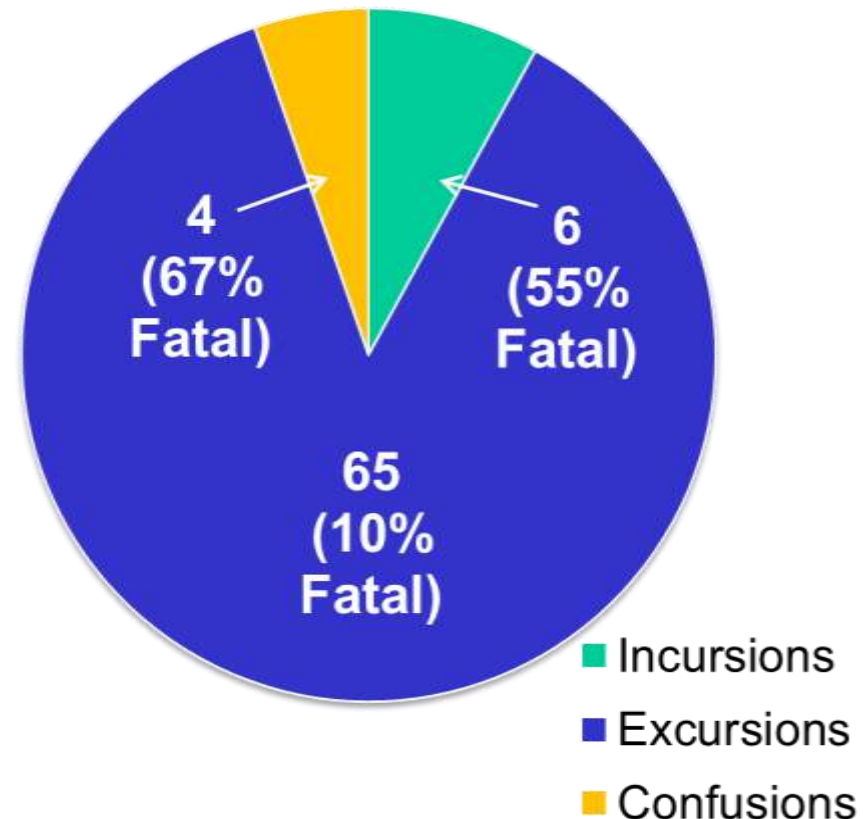
- Previously defined by FAA as ***hazard created by*** airplane or vehicle on the runway when it should not have been
- Now defined as “any occurrence at an aerodrome involving incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing or takeoff aircraft”
whether or not a hazard was created

Runway Accidents, 1995-2010

All Runway Accidents



Fatal Runway Accidents

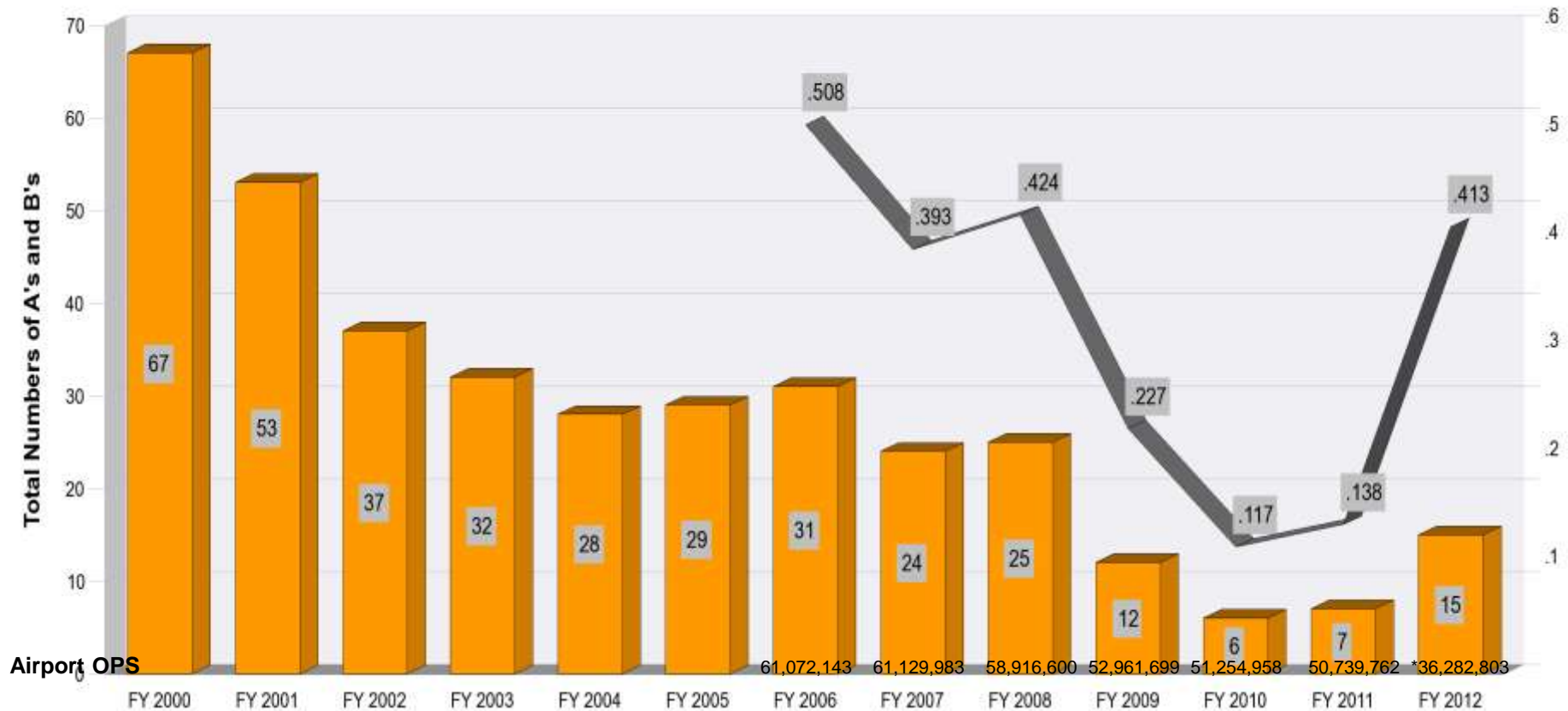


Note: Of 1429 accidents involving major or substantial damage from 1995-2008, 431 (30%) were runway related

So Why Emphasize Incursions?

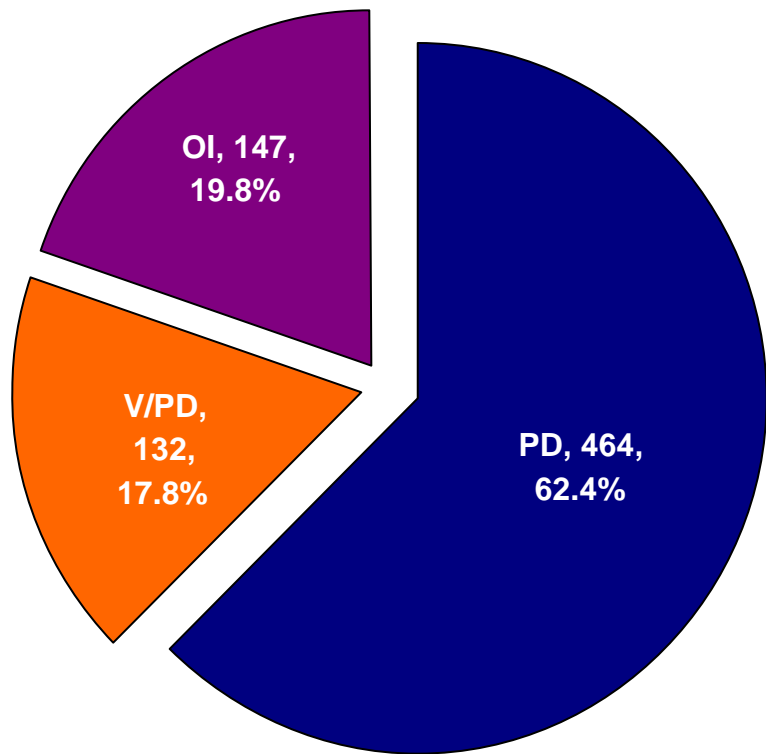
- **Historic**
 - Worst accident in aviation history (Tenerife: 583 fatalities)
- **Low probability but high consequence**
 - Airliner to airliner
- **Demand will grow more than capacity**
 - More airplanes
but
 - No new airports (and very few new runways)
- **Increasing communications challenges**
 - More traffic
 - More extensive taxi instructions
 - Hold short for every runway

Category A and B Runway Incursions

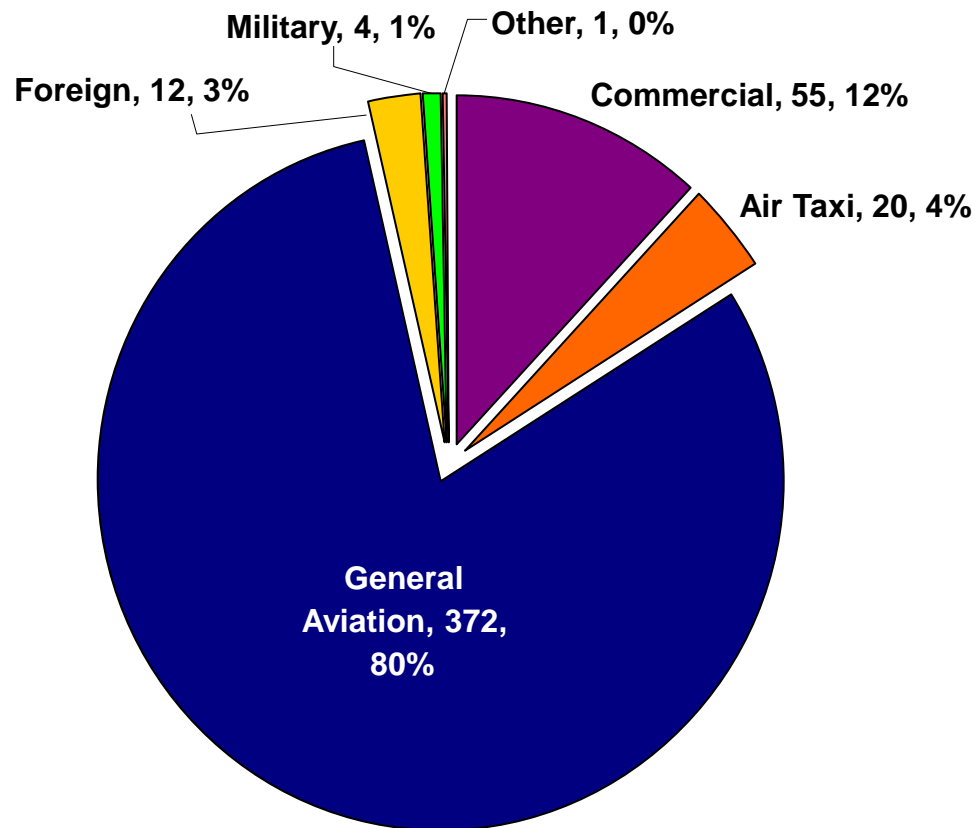


* As of June 26, 2012

Incursion Numbers and Rates



743 Runway Incursions



464 Pilot Deviations

Source: FAA, 1 Oct 2011 – 30 June 2012

GA Incursions

- Nearly half involve entry onto the runway or across the hold short line**
 - In nearly half of those, the pilot received a clearance, acknowledged the clearance, and read it back correctly**
 - In the remainder, the pilot either received no clearance, or received a clearance to, but not onto, the runway**

The Paradigm Shift

- **Previous Response: Punishment**
 - Mostly pilots
 - Sometimes controllers
- **The Good News: Runway Safety Council**
 - Objective: Identify and fix problems, rather than punish
 - Collaborative activity, including FAA, airlines, labor, AOPA, and others
 - Quarterly meetings to determine root causes, re most recent RI's, make recommendations
 - Follow up on recommendations



Sample of Results

- **Inclusion of chapter re Runway Incursion Avoidance in Pilot's Handbook of Aeronautical Knowledge**
- **Progress toward inclusion of runway incursion material in**
 - **Practical Test Standards**
 - **Instructor training**
 - **Part 142 curriculum**
- **Changes in ATC procedures**
- **Changes re airport signs and markings**



Problems and Solutions: Airport Chart

- **Have it**
 - **Incursion due to pilots unfamiliar, no chart**
 - **Get chart online**
 - **Encourage FBOs to provide charts**

- **Understand it (especially “Hot Spots”)**
 - **Incursion due to missed turn while programming FMS**
 - **Incursion due to failure to clarify confusing clearance**
 - **Incursion due to unawareness of “gotcha”**
 - **Wrong runway due to inadequate awareness of geometry**



Expectation Bias

(Think You Hear What You Expect To Hear)

- No Readback**
 - Pilot's readback did not specify which runway
 - Controller did not ask
 - Pilot departed on wrong runway
- Pilot Hears Clearance Incorrectly**
 - Pilot told to continue approach
 - Controller in long conversation re other matter
 - Pilot landed without clearance
- Controller Hears Readback Incorrectly**
 - Readback re non-existent intersection should have alerted controller to problem



Abnormal Operations

– Construction

- Normal or construction lights may be inoperative
- Routes may not be well marked
- Procedures interim, may not be robust

– Other

- Stuck mike – Causal link in takeoff without clearance
- Long conversation – Resulted in landing without clearance
- Mishap at airport – Resulted in incorrect clearance (procedures not robust or well-practiced)



And Sometimes . . . People Simply *FORGET!*

- To err is human
- As noted above, in *nearly half* of GA pilot deviations leading to runway incursions, the pilot received a clearance, acknowledged the clearance, and read it back correctly
- Controllers sometimes forget and issue simultaneous (conflicting) clearances



Moral of the Story

- The System Involves Many Good People Trying to Do the Right Thing, But Always Be Alert for Errors –
Yours and Others
- Trust But Verify
- When in Doubt – *ASK!!*



Thank You!!!



Questions?